

WE CLAIM:

1. A method to hyposensitize a mammal, said method comprising:
 - (a) obtaining an immunogenic composition comprising multimeric profilin; and
 - 5 (b) administering an effective dose of the composition successively in incremental doses until the mammal is hyposensitized.
2. The method of claim 1, wherein multimeric profilin is selected from a group consisting of naturally occurring, synthetic, or recombinantly made profilin
3. The method of claim 2, wherein the profilin occurs as complexes of
10 homomultimers.
4. The method of claim 1, wherein the multimeric profilin comprises synthetic peptide fragments of profilin.
5. The method of claim 3, wherein the multimeric profilin comprises synthetic peptide fragments that have novel sequences that arise from profilin
15 multimerization
6. The method of claim 1, wherein the multimeric profilin comprises peptide fragments made by recombinant DNA technology.
7. The method of claim 1, wherein the multimeric profilin comprises monomers selected from the group consisting of celery (Api g4, GENE BANK
20 ACCESSION NO. QPXF37), peanut (Ara h5, GENE BANK ACCESSION NO. Q9SQ19), birch tree pollen (Bet v2, GENE BANK ACCESSION NO. P25816), Bermuda grass (Cyn d12, GENE BANK ACCESSION NO. O04725), soybean (Gly m3, GENE BANK ACCESSION NO. O65809, O65810), sunflower (Hel A2, GENE BANK ACCESSION NO. O81980), latex (Hev b8, GENE BANK ACCESSION NO.
25 CAB51914, O65812, Q9STB6, Q9M7N0, Q9M7M9, Q9M7M8, Q9LE18), Mercurialis annua (Mer a1, GENE BANK ACCESSION NO. O49894), olive tree pollen (Ole e2, GENE BANK ACCESSION NO. P19963, O024170m O24171), timothy grass (Phl p11, GENE BANK ACCESSION NO. P35079, O24650, O24282), sweet cherry (Pru av4, GENE BANK ACCESSION NO. Q9XF39), pear (Pyr c4,
30 Q9XF27), corn pollen (Zea Pro I, GENE BANK ACCESSION NO.B35081; Zea Pro

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II, GENE BANK ACCESSION NO. P35080; ZMPro III, GENE BANK
ACCESSION NO. P35083; ZmProIV, GENE BANK ACCESSION NO. O22655;
ZmProV, GENE BANK ACCESSION NO. Q9FR39), human (profilin I, GENE
BANK ACCESSION NO. P07737; Profilin II isoform 1, GENE BANK ACCESSION
NO. NP_444252; and Profilin II isoform GENE BANK ACCESSION
NO.NP_002619, or combinations thereof.

8. The method of claim 1, wherein the immunogenic composition
comprises pharmaceutically acceptable carriers or diluents.

9. The method of claim 1, wherein administration route is selected from
10 the group consisting of parenteral, oral, nasal, inhalant or rectal routes.

10. A synthetic peptide that is characterized as:

- (a) including from about 7 to 21 amino acids sequentially linked and
selected from the monomeric profilin of Table 3;
- (b) the amino acids include at least one proline; and
- 15 (c) the amino acids include at least one acidic amino acid; and

11. The synthetic peptide of claim 9, wherein the sequence of the amino
acids is the same novel sequence that is found by continuing the sequence from one
profilin molecule to the adjoining profilin molecule as shown in FIG. 5 in the binding
regions exposed by aggregation.

20 12. A profilin multimer comprising an aggregation of synthetic peptides of
claim 10.

13. The multimeric form of the plant profilin of claim 11, further defined
as heteromultimeric.

25 14. The multimeric form of plant profilin of claim 11 further defined as
synthetic.

15. Purified multimeric forms of plant profilin having the following
characteristics:

- (a) comprising monomeric plant profilin each monomer having an amino
acid sequence that each contain at least one cysteine or fragments
thereof; and
- 30 (b) having an estimated molecular weight of at least 24 kDa.

100-101-102-103-104-105-106-107-108-109

16. A composition wherein the multimeric profilin is selected from the group of monomeric profilin consisting of celery (Api g4, GENE BANK
ACCESSION NO. Q9XF37), peanut (Ara h5, GENE BANK ACCESSION NO.
Q9SQ19), birch tree pollen (Bet v2, GENE BANK ACCESSION NO. P25816),
5 Bermuda grass (Cyn d12, GENE BANK ACCESSION NO. O04725), soybean (Gly
m3, GENE BANK ACCESSION NO. O65809, O65810), sunflower (Hel A2, GENE
BANK ACCESSION NO. O81982), latex (Hev b8, GENE BANK ACCESSION NO.
CAB51914, O65812, Q9STB6, Q9M7N0, Q9M7M9, Q9M7M8, Q9LE18),
Mercurialis annua (Mer a1, GENE BANK ACCESSION NO. O49894), olive tree
10 pollen (Ole e2, GENE BANK ACCESSION NO. P19963, O024170, O24171),
timothy grass (Phl p11, GENE BANK ACCESSION NO. P35079, O24650, O24282),
sweet cherry (Pru av4, GENE BANK ACCESSION NO. Q9XF39), pear (Pyr c4,
Q9XF27), corn (Zm PROI, GENE BANK ACCESSION NO. P35081; Zm Pro II,
GENE BANK ACCESSION NO. P35082; ZmPro III, GENE BANK ACCESSION
15 NO. P35083; ZmProIV, GENE BANK ACCESSION NO. O22655; ZmProV, GENE
BANK ACCESSION NO. Q9FR39), human (profilin I, GENE BANK ACCESSION
NO. P07737; Profilin II isoform a, GENE BANK ACCESSION NO. NP_444252; and
Profilin II isoform b, GENE BANK ACCESSION NO.NP_002619, or composition
thereof.
- 20 17. A diagnostic test for allergies, said test comprising:
(a) obtaining a pharmaceutical composition of multimeric profilin or
functionally equivalent fragments thereof;
(b) administering the composition to a subject; and
(c) determining a reaction from which allergenicity is inferred.
- 25 18. Use of multimeric profilin or a functional equivalent to hyposensitize a
mammal.
19. An antibody directed against a synthetic peptide of claim 10.
20. An antibody directed against the multimeric profilin of claim 12.
21. An antibody against the multimeric profilin of claim 15.